It is easy to say that Mr. Man may be prejudiced in favour of these little savages, whose language he has been at so much pains to learn. Fortunately, however, all his statements have lately been confirmed by another authority, Colonel Cadell—the Chief Commissioner of these islands. He is a Victoria Cross man, and not likely to be given to over-much sentimentality. Well, this is what he says of these fierce mastiffs, with feet a cubit in length :—

"They are merry little people," he says. "One could not imagine how taking they were. Everyone who had to do with them fell in love with them [these fierce mastiffs]. Contact with civilization had not improved the morality of the natives, but in their natural state they were truthful and honest, generous and self-denying. He had watched them sitting over their fires cooking their evening meal, and it was quite pleasant to notice the absence of greed and the politeness with which they picked off the tit-bits and thrust them into each other's mouths. The forest and sea abundantly supplied their wants, and it was therefore not surprising that the attempts to induce them to take to cultivation had been quite unsuccessful, highly though they appreciated the rice and Indian corn which were occasionally supplied to them. All was grist that came to their mill in the shape of food. The forest supplied them with edible roots and fruits. Bats, rats, flying foxes, iguanas, sea-snakes, mollusks, wild pig, fish, turtle, and last, though not least, the larvæ of beetles, formed welcome additions to their larder. He remembered one morning landing by chance at an encampment of theirs, under the shade of a gigantic forest tree. On one fire was the shell of a turtle, acting as its own pot, in which was simmering the green fat delicious to more educated palates ; on another its flesh was being broiled, together with some splendid fish ; on a third a wild pig was being roasted, its drippings falling on wild yams, and a jar of honey stood close by, all delicacies fit for an alderman's table."

These are things which we might suppose anybody who has eyes to see, and who is not wilfully blind, might have observed. But when we come to traditions, laws, and particularly to religion, no one ought to be listened to as an authority who cannot converse with the natives. For a long time the Mincopies have been represented as without any religion, without even an idea of the Godhead. This opinion received the support of Sir John Lubbock, and has been often repeated without ever having been re-examined. As soon, however, as these Mincopies began to be studied more carefully—more particularly as soon as some persons resident among them had acquired a knowledge of their language, and thereby a means of real communication—their religion came out as clear as daylight. According to Mr. E. H. Man, they have a name for God—*Pûluga*. And how can a race be said to be without a knowledge of God if they have a name for God? *Pûluga* has a very mythological character. He has a stone house in the sky ; he has a wife, whom he created himself, and from whom he has a large family, all, except the eldest, being girls. The mother is supposed to be green (the earth?), the daughters black ; they are the spirits, called *Môrowin ;* his son is called *Pûjchor*. He alone is permitted to live with his father, and to convey his orders to the *Môrowin*. But *Pûluga* was a moral character also. His appearance is like fire, though nowadays he has become invisible. He was never born, and is immortal. The whole world was created by him, except only the powers of evil. He is omniscient, knowing even the thoughts of the heart. He is angered by the commission of certain sins—some very trivial, at least to our mind—but he is pitiful to all who are in distress. He is the judge from whom each soul receives its sentence after death.

According to other authorities, some Andamanese look on the sun as the fountain of all that is good, the moon as a minor power ; and they believe in a number of inferior spirits, the spirits of the forest, the water, and the mountain, as agents of the two higher powers. They believe in an evil spirit also, who seems to have been originally the spirit of the storm. Him they try to pacify by songs, or to frighten away with their arrows.

I suppose I need say no more to show how indispensable a study of language is to every student of anthropology. If anthropology is to maintain its high position as a real science, its alliance with linguistic studies cannot be too close. Its weakest points have always been those where it trusted to the statements of authorities ignorant of language and of the science of language. Its greatest triumphs have been achieved by men such as Dr. Hahn, Bishops Callaway and Colenso, Dr. W. Gill, and last, not least, Mr. Man, who have combined the minute accuracy of the scholar with the comprehensive grasp of the anthropologist, and were thus enabled to use the key of language to unlock the perplexities of savage customs, savage laws and legends, and, particularly, of savage religions and mythologies. If this alliance between anthropology and philology becomes real, then, and then only, may we hope to see Bunsen's prophecy fulfilled, that anthropology will become the highest branch of that science for which this British Association is instituted.

Allow me in conclusion once more to quote some prophetic words from the address which Bunsen delivered before our Section in 1847 :—

"If man is the apex of the creation, it seems right, on the one side, that a historical inquiry into his origin and development should never be allowed to sever itself from the general body of natural science, and in particular from physiology. But, on the other side, if man is the apex of the creation, if he is the end to which all organic formations tend from the very beginning, if man is at once the mystery and the key of natural science, if that is the only view of natural science worthy of our age, then ethnological philology (I should prefer to say anthropology), once established on principles as clear as the physiological are, is the highest branch of that science for the advancement of which this Association is instituted. It is not an appendix to physiology or to anything else ; but its object is, on the contrary, capable of becoming the end and goal of the labours and transactions of a scientific Association."

Much has been achieved by anthropology to justify these hopes and fulfil the prophecies of my old friend Bunsen. Few men live to see the fulfilment of their own prophecies, but they leave disciples whose duty it is to keep their memory alive, and thus to preserve that vital continuity of human knowledge which alone enables us to see in the advancement of all science the historical evolution of eternal truth.

ELECTRICAL STANDARDS.

THE Queen's Printers are now issuing the Report (dated July 23, 1891) to the President of the Board of Trade, of the Committee appointed to consider the question of constructing standards for the measurement of electricity. The Committee included Mr. Courtenay Boyle, C.B., Major P. Cardew, R.E., Mr. E. Graves, Mr. W. H. Preece, F.R.S., Sir W. Thomson, F.R.S., Lord Rayleigh, F.R.S., Prof. G. Carey Foster, F.R.S., Mr. R. T. Glazebrook, F.R.S., Dr. John Hopkinson, F.R.S., Prof. W. E. Ayrton, F.R.S.

In response to an invitation, the following gentlemen attended and gave evidence :—On behalf of the Association of Chambers of Commerce, Mr. Thomas Parker and Mr. Hugh Erat Harrison ; on behalf of the London Council, Prof. Silvanus Thompson ; on behalf of the London Chamber of Commerce, Mr. R. E. Crompton. The Committee were indebted to Dr. J. A. Fleming and Dr. A. Muirhead for valuable information and assistance ; and they state that they had the advantage of the experience and advice of Mr. H. J. Chaney, the Superintendent of Weights and Measures. The Secretary to the Committee was Sir T. W. P. Blomefield, Bart.

The following are the resolutions of the Committee :—

Resolutions.

(1) That it is desirable that new denominations of standards for the measurement of electricity should be made and approved by Her Majesty in Council as Board of Trade standards.

(2) That the magnitudes of these standards should be determined on the electro-magnetic system of measurement with reference to the centimetre as unit of length, the gramme as unit of mass, and the second as unit of time, and that by the terms centimetre and gramme are meant the standards of those denominations deposited with the Board of Trade.

(3) That the standard of electrical resistance should be denominated the ohm, and should have the value 1,000,000,000 in terms of the centimetre and second.

(4) That the resistance offered to an unvarying electric current

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by a column of mercury of a constant cross sectional area of 1 square millimetre, and of a length of 106·3 centimetres at the temperature of melting ice may be adopted as 1 ohm.

(5) That the value of the standard of resistance constructed by a committee of the British Association for the Advancement of Science in the years 1863 and 1864, and known as the British Association unit, may be taken as ·9866 of the ohm.

(6) That a material standard, constructed in solid metal, and verified by comparison with the British Association unit, should be adopted as the standard ohm.

(7) That for the purpose of replacing the standard, if lost, destroyed, or damaged, and for ordinary use, a limited number of copies should be constructed, which should be periodically compared with the standard ohm and with the British Association unit.

(8) That resistances constructed in solid metal should be adopted as Board of Trade standards for multiples and sub-multiples of the ohm.

(9) That the standard of electrical current should be denominated the ampere, and should have the value one-tenth (0·1) in terms of the centimetre, gramme, and second.

(10) That an unvarying current which, when passed through a solution of nitrate of silver in water, in accordance with the specification attached to this report, deposits silver at the rate of 0·001118 of a gramme per second, may be taken as a current of 1 ampere.

(11) That an alternating current of 1 ampere shall mean a current such that the square root of the time-average of the square of its strength at each instant in amperes is unity.

(12) That instruments constructed on the principle of the balance, in which by the proper disposition of the conductors, forces of attraction and repulsion are produced, which depend upon the amount of current passing, and are balanced by known weights, should be adopted as the Board of Trade standards for the measurement of current, whether unvarying or alternating.

(13) That the standard of electrical pressure should be denominated the volt, being the pressure which, if steadily applied to a conductor whose resistance is 1 ohm, will produce a current of 1 ampere.

(14) That the electrical pressure at a temperature of 62° F. between the poles or electrodes of the voltaic cell known as Clark's cell, may be taken as not differing from a pressure of 1·433 volts, by more than an amount which will be determined by a sub-committee appointed to investigate the question, who will prepare a specification for the construction and use of the cell.

(15) That an alternating pressure of 1 volt shall mean a pressure such that the square root of the time-average of the square of its value at each instant in volts is unity.

(16) That instruments constructed on the principle of Sir W. Thomson's quadrant electrometer used idiostatically, and for high-pressure instruments on the principle of the balance, electrostatic forces being balanced against a known weight, should be adopted as Board of Trade standards for the measurement of pressure, whether unvarying or alternating.

We have adopted the system of electrical units originally defined by the British Association for the Advancement of Science, and we have found in its recent researches, as well as in the deliberations of the International Congress on Electrical Units, held in Paris, valuable guidance for determining the exact magnitudes of the several units of electrical measurement, as well as for the verification of the material standards.

We have stated the relation between the proposed standard ohm and the unit of resistance originally determined by the British Association, and have also stated its relation to the mercurial standard adopted by the International Conference.

We find that considerations of practical importance make it undesirable to adopt a mercurial standard, we have, therefore, preferred to adopt a material standard constructed in solid metal.

It appears to us to be necessary that in transactions between buyer and seller, a legal character should henceforth be assigned to the units of electrical measurement now suggested, and with this view, that the issue of an Order in Council should be recommended, under the Weights and Measures Act, in the form annexed to this report.

Specification referred to in Resolution 10.

In the following specification the term silver voltameter means the arrangement of apparatus by means of which an electric current is passed through a solution of nitrate of silver in water. The silver voltameter measures the total electrical quantity which has passed during the time of the experiment, and by noting this time the time-average of the current, or if the current has been kept constant, the current itself, can be deduced.

In employing the silver voltameter to measure currents of about 1 ampere, the following arrangements should be adopted. The kathode on which the silver is to be deposited should take the form of a platinum bowl not less than 10 cm. in diameter, and from 4 to 5 cm. in depth.

The anode should be a plate of pure silver some 30 square cm. in area and 2 or 3 millimetres in thickness.

This is supported horizontally in the liquid near the top of the solution by a platinum wire passed through holes in the plate at opposite corners. To prevent the disintegrated silver which is formed on the anode from falling on to the kathode, the anode should be wrapped round with pure filter paper, secured at the back with sealing-wax.

The liquid should consist of a neutral solution of pure silver nitrate, containing about 15 parts by weight of the nitrate to 85 parts of water.

The resistance of the voltameter changes somewhat as the current passes. To prevent these changes having too great an effect on the current, some resistance besides that of the voltameter should be inserted in the circuit. The total metallic resistance of the circuit should not be less than 10 ohms.

Method of making a Measurement.—The platinum bowl is washed with nitric acid and distilled water, dried by heat, and then left to cool in a desiccator. When thoroughly dry, it is weighed carefully.

It is nearly filled with the solution, and connected to the rest of the circuit by being placed on a clean copper support, to which a binding screw is attached. This copper support must be insulated.

The anode is then immersed in the solution, so as to be well covered by it, and supported in that position; the connections to the rest of the circuit are made.

Contact is made at the key, noting the time of contact. The current is allowed to pass for not less than half an hour, and the time at which contact is broken is observed. Care must be taken that the clock used is keeping correct time during this interval.

The solution is now removed from the bowl, and the deposit is washed with distilled water and left to soak for at least six hours. It is then rinsed successively with distilled water and absolute alcohol, and dried in a hot-air bath at a temperature of about 160° C. After cooling in a desiccator, it is weighed again. The gain in weight gives the silver deposited.

To find the current in amperes, this weight, expressed in grammes, must be divided by the number of seconds during which the current has been passed, and by 0·001118.

The result will be the time-average of the current, if during the interval the current has varied.

In determining by this method the constant of an instrument the current should be kept as nearly constant as possible, and the readings of the instrument taken at frequent observed intervals of time. These observations give a curve from which the reading corresponding to the mean current (time-average of the current) can be found. The current, as calculated by the voltameter, corresponds to this reading.

NOTES.

THE International Meteorological Conference at Munich was opened on August 26. Dr. C. Lang, Director of the Bavarian Meteorological Service, was unanimously elected President. Prof. M. W. Harrington (Chief of the United States Weather Bureau) and Prof. E. Mascart (Director of the French Meteorological Service) were elected Vice-Presidents. Mr. R. H. Scott (Secretary of the Meteorological Office), Dr. F. Erk (Munich), and M. L. Teisserenc de Bort (Paris) were elected Secretaries. Thirty members were present, including representatives from Brazil, Queensland, and the United States. We hope in a future number to give some account of the proceedings.

DR. BARCLAY, whose death at Simla has been announced, was working on the Leprosy Commission, and his loss is

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